

## ABSTRACT

The present invention is directed to methods and compositions for using DNA analog probes in increasing the efficiency of DNA targeting by recombinase coated nucleoprotein filaments. The present invention teaches novel methods and compositions that combine the traditional advantages of RecA coated filaments in catalyzing homology searches with the utility of PNA (peptide nucleic acids) to bind DNA with a very high affinity and its ability to locally open the target DNA thereby improving the kinetics of RecA-mediated strand exchange.